



Configuring Rather Than Designing

# Vacuum End Effectors VEE

Vacuum End Effectors VEE

## Overview of Highlights



### Individual configuration

- Flexibly configurable, perfectly coordinated individual components
- Variable number and positioning of the suction cups
- Hose-free vacuum distribution
- Optional integrated vacuum generation available



### Reduced construction and manufacturing efforts

- Online configurator for designing the end effector in just a few minutes including the creation of CAD data and parts lists
- Minimizes configuration and production time by more than 80 %
- Reduces manufacturing costs



### Extremely lightweight

- Complete end effectors weighing as low as 150 g
- Designed for high-speed applications with accelerations up to 10 g (100 m/s<sup>2</sup>)



### Outstanding hygiene properties

- FDA compliant material (high performance thermoplastic)
- Excellent resistance to alkaline agents



### Assembly service

- Upon request, we can deliver your custom-configured vacuum end effector VEE as a complete unit

VEE Online Configurator

## Configuring Rather Than Designing



With the VEE online configurator, you arrive at an individually tailored end effector solution with just a few mouse clicks.

### Your benefits

- Live 3D preview of the configuration
- Creation of a 3D PDF data sheet including a parts list and CAD data
- Simple importing in your existing construction
- Quick request for proposal (RFP)



[WWW.SCHMALZ.COM/VEE](http://WWW.SCHMALZ.COM/VEE)

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## Application



Vacuum end effector with bellows suction cups SPB1 and electrical vacuum generator ECBPi handling cardboard boxes



Vacuum end effector with bellows suction cups SPB4f handling pouches with many wrinkles and a low filling degree



Vacuum end effector with bellows suction cups SPB4 and stabilization elements handling unstable flow-wrap packaging

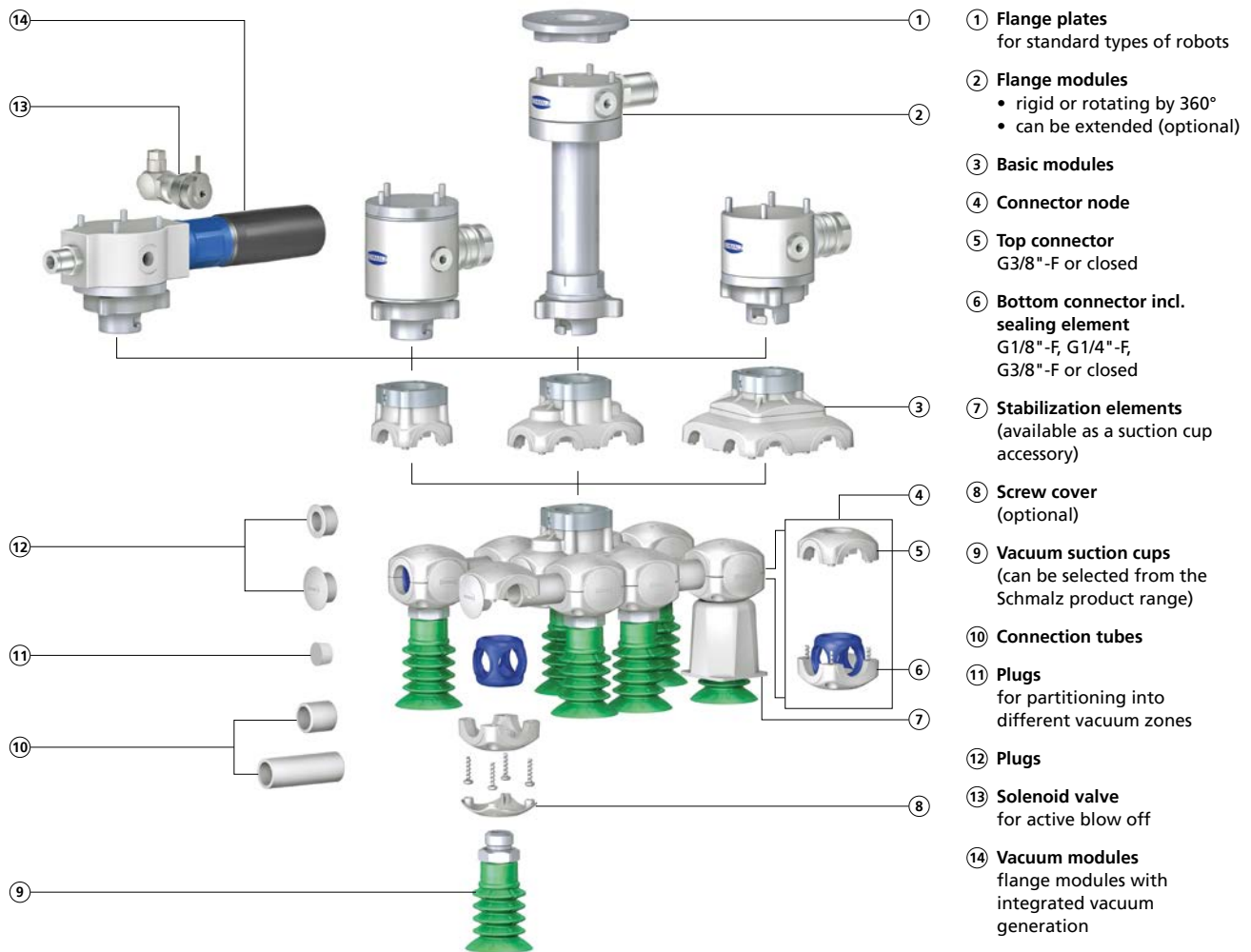
### SYSTEM COMPONENTS FOR QUICK AND COST-EFFECTIVE DESIGNING OF VACUUM END EFFECTORS FOR HIGHSPEED PACKAGING PROCESSES

- Pick-and-place applications with Delta, Scara and articulated robots
- Fully automated filling of cardboard boxes in case packers
- Primarily used in secondary packaging processes
- Transporting products into top-loading machines as well as in cardboard box and tray aligners
- Use in flexible packaging machines with frequent format changes



Vacuum end effector with bellows suction cups SPB4f handling pouches

# Design



## VACUUM SUCTION CUPS FOR THE PACKAGING INDUSTRY



**Flat suction cups SPF / Bellows suction cups SP(O)B1**  
 For intrinsically stable and slightly unstable cardboard boxes and packaging

**Bellows suction cups SPB4(-f)**  
 For bags and flexible packaging

**Flat suction cups SGPN**  
 For films, blister packs and other sensitive packaging

**Bellows suction cups FSG / FSGA**  
 Universal suction cups for various packaging applications



## Vacuum End Effectors VEE

# Overview of VEE System



Flange plates FLAN-PL



Flange modules VEE-QCM



Vacuum modules VEE-QCMV



Solenoid valve EMV for active blow off



Flange extensions VEE-FE



Basic modules VEE-QCF



Top connector VEE-CO-U



Bottom connector VEE-CO-L



Connection tubes VEE-TU



Plugs VEE-PL



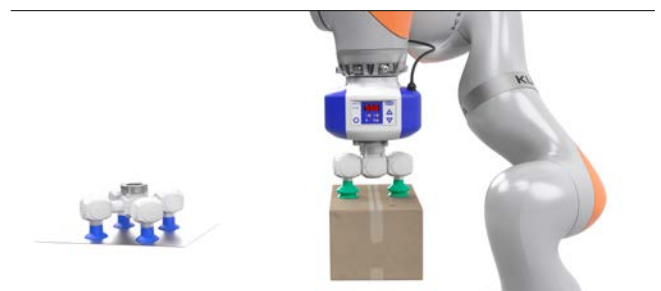
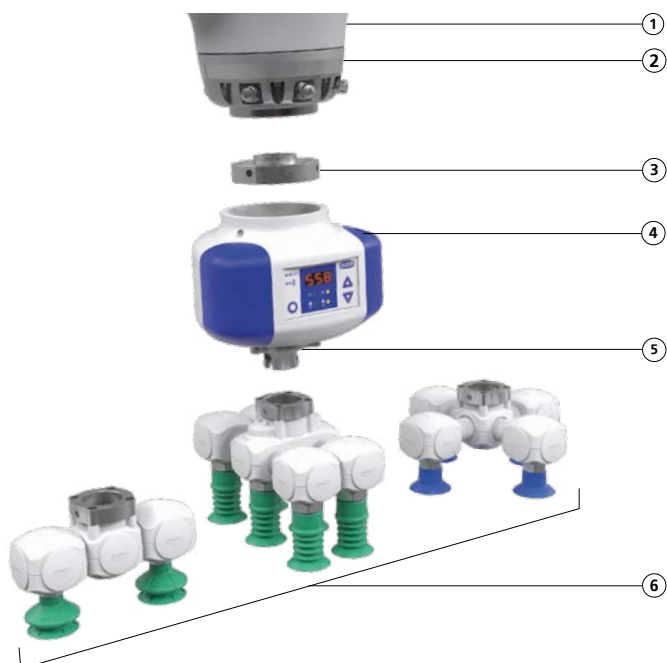
Stabilization elements SPSE



Tool center point VEE-TCP

## Schmalz Vacuum Generator ECBPi

# Intelligent Extension with Matching Vacuum Generator



Configure and connect VEE with ECBPi easily – individually for each application.

- ① Collaborative robot (all common cobot models)
- ② Robot flange for mechanical connection of the electrical vacuum generator ECBPi
- ③ Flange adapter plate
- ④ M12 8-pin plug connection or terminal block as digital interface between the ECBPi and the robot
- ⑤ Flange for gripper connection
- ⑥ Flexibly configurable grippers from the modular system for vacuum end effectors VEE

## Vacuum End Effectors VEE

# Starter Set

Whether for use directly in a robotic system or as handy design tool – with the VEE Starter Set you have all of the most important components for quickly assembling your effector right at your fingertips.

### Contents

120-piece starter set with all of the components necessary for installing up to two VEE vacuum end effectors, including:

- 8 vacuum suction cups SPB4f-30 for bags and flexible packaging
- Lockable quick-change adapter with bayonet mount

Supplied in a sturdy plastic case with detailed assembly instructions. Part no.: 10.01.36.00030

[WWW.SCHMALZ.COM/VEE-STARTERSET](http://WWW.SCHMALZ.COM/VEE-STARTERSET)



VEE Starter Set

## Technical Data and Design Data

### Technical Data

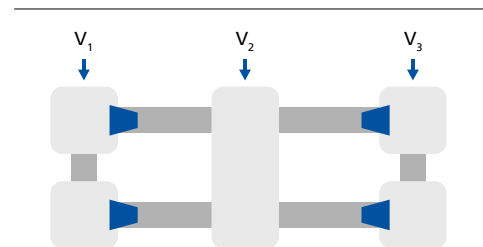
| Specification           | Vacuum end effectors from the VEE system                       |
|-------------------------|--|
| Max. rated flow         | 60 m <sup>3</sup> /h   |
| Max. vacuum value       | -980 mbar  |
| Overpressure resistance | up to 3 bar  |
| Temperature range       | -25 °C to +80 °C   |
| Material                | High performance thermoplastic (compliant with FDA guidelines) |
| Max. load capacity      | 2,000 g  |

### Design Data

Vacuum end effectors VEE can be freely configured within the framework values. When used in connection with our wide selection of suction cups, the possibilities are practically endless.

| Specifications                 | Vacuum end effectors from the VEE system |                           |
|--------------------------------|--|---------------------------|
|                                | Minimum configuration                    | Maximum configuration     |
| Basic module                   | 1-connection                             | 4-connection              |
| Suction cups connection thread | G1/8"-F, G1/4"-F, G3/8"-F                | G1/8"-F, G1/4"-F, G3/8"-F |
| Dimensions (L/W)               | 38 x 38 mm                               | 300 x 200 mm              |
| Weight <sup>1</sup>            | 65 g                                     | 500 g                     |
| Qty. of suction cups           | 1  | 12                        |
| Workpiece sizes (L/W)          | 15 x 15 mm                               | 400 x 300 mm              |

<sup>1</sup> without flange module and suction cup



Partitioning into multiple independent vacuum zones with plugs VEE-PL